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(54) **Light source condition indicator**
(57) A light source condition indicator
has a display location, an optical wave
guide extending between the display

location and a remote light source, the
wave guide being operative to direct
light, when emitted, from the source
to the display location to indicate the
condition of the light source.

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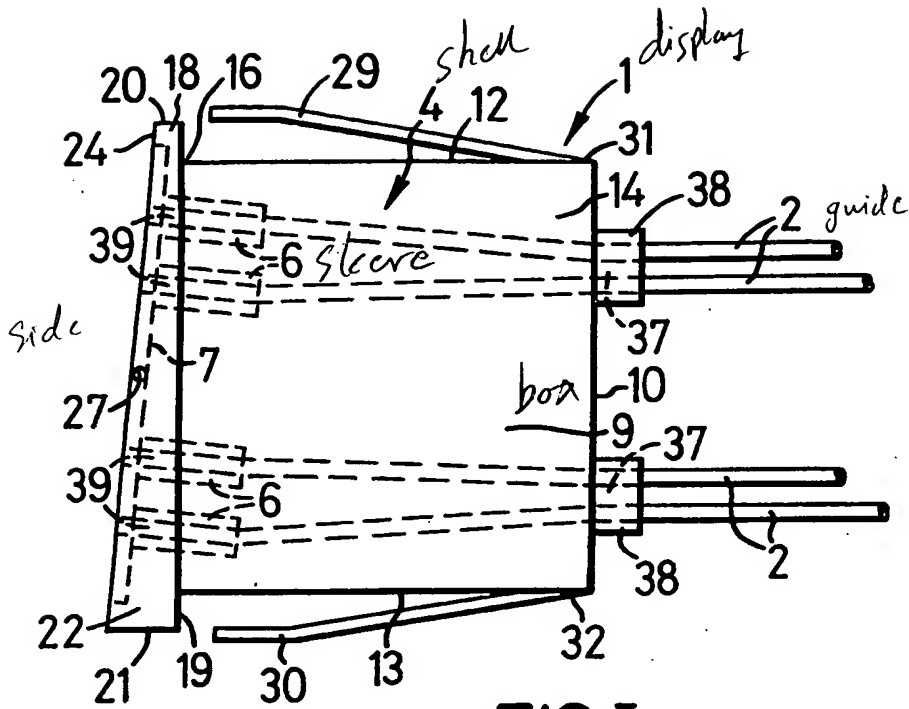


FIG. I

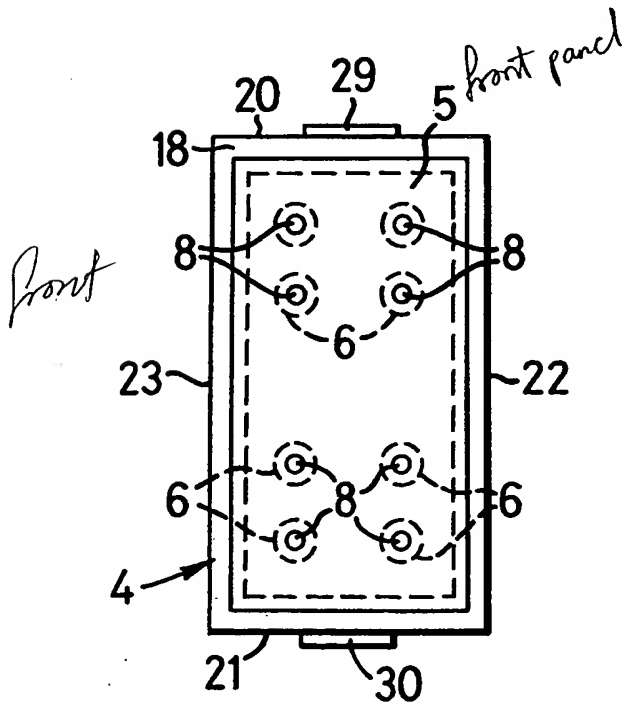


FIG. II

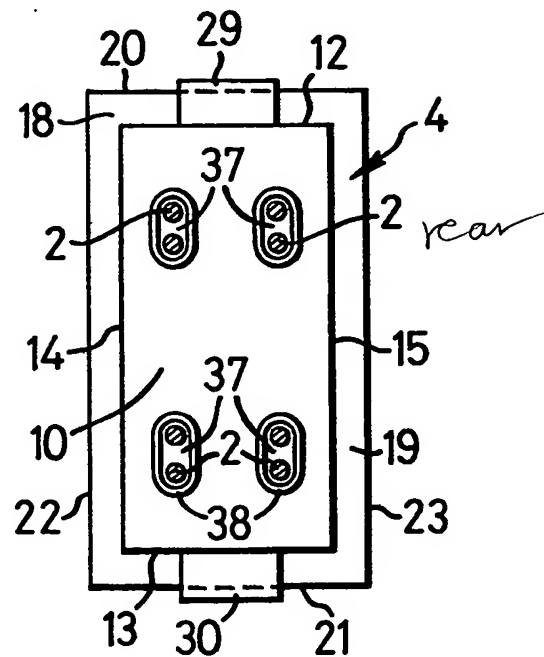
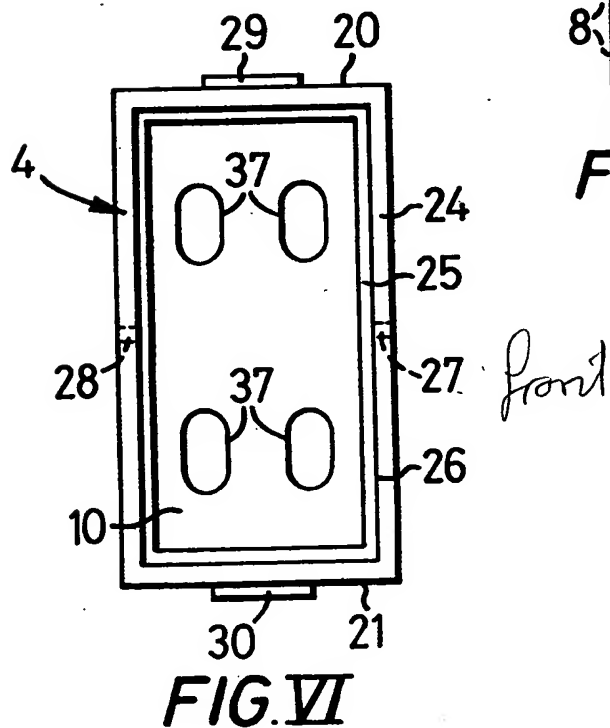
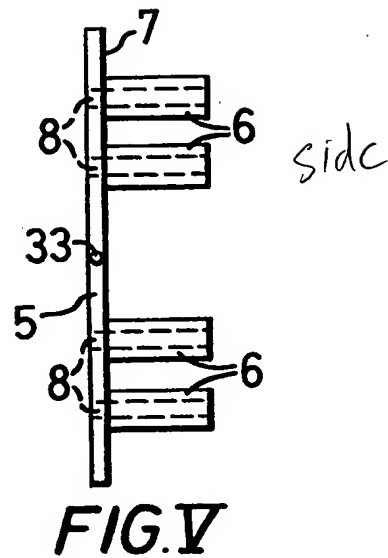
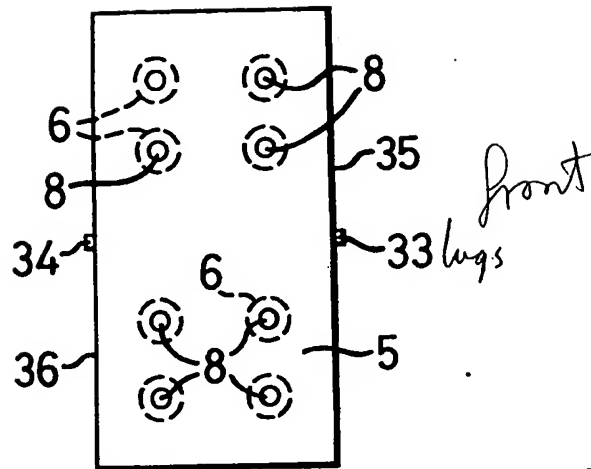


FIG. III



SPECIFICATION

Light source condition indicator

DESCRIPTION

5 This invention relates to light source condition indicators.

The invention may find particular application in vehicles to indicate the condition of external lights. In known vehicles, for example motor cars, the condition of the headlights, brake lights, etc, usually has to be ascertained by indirect inference or by external inspection, sometimes requiring an assistant.

One example of a known light source condition indicator which relies on indirect inference is a small low-powered light bulb wired in parallel with a light source for example, a vehicle's tail lights, whose condition it is required to indicate. The small indicator light bulb is situated in the dash board of the motor vehicle, in view of the driver. When energy is supplied to the tail-lights, the indicator bulb is also energised. The indicator bulb lights up and thereby indicates to the driver that the tail lights have been switched on. The main disadvantage of this known system is that if a tail light bulb should malfunction, the indicator bulb will still glow and, since the driver cannot see the tail lights he will be unaware of such a bulb failure.

According to the present invention there is provided a light source condition indicator comprising means defining a display location, an optical wave guide extending between the display location and a remote light source, the wave guide being operative to direct light, when emitted, from the source to the display location to indicate the condition of the light source.

In a particular embodiment of the invention the remote light source is an external light of a vehicle and the means defining the display location is in view of the operator of the vehicle in his normal position inside the vehicle. The means defining the display location may comprise the dash board of the vehicle.

One advantage of the present invention is that when in use in conjunction with a light source, of any type, the condition of the light source is displayed so that an observer, who otherwise may be unable to see the light source, is able to ascertain its condition with certainty.

A further advantage of the present invention is that in use in conjunction with a light source, the condition indicator requires no power supply.

A specific embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, wherein:

55 Figure I is a side view of a display panel in accordance with the present invention;

Figure II is a front view of the display unit;

Figure III is a rear view of the display unit;

60 Figure IV shows a front view of the front panel of the display unit;

Figure V shows a side view of the front panel of the display unit; and

Figure VI shows a front view of the display unit

without the front panel in place.

65 A light source status indicator in accordance with the present invention, primarily intended for use in a motor vehicle, comprises a display unit 1 and a plurality of flexible optical wave guides 2 *optical waveguide* (Figures I & III) which extend between a light source (not shown) and the display unit 1.

With particular reference to figures I & II the display unit 1 is formed from a plastics material and comprises a shell 4 and a rectangular front panel 5. A plurality of sleeves 6 having a circular cross-section extend outwardly from the rear face 7 of the front panel 5. The front panel 5 (Figures IV & V) is formed from a transparent material and its rear face 7 is coated with an opaque material except in the regions 8 confined within the sleeves 6. Two cylindrical lugs 33 & 34 extend outwardly from long edges 35 & 36 of the front panel 5.

The shell 4 (see figures I, II, III & IV) comprises a rectangular open ended box 9 having a rectangular rear panel, two short sides 12 & 13 and two long sides 14 & 15. The end parts 16 of the sides 12, 13, 14 & 15 define a rectangular opening 17. A rectangular flange 18 extends outwardly from the sides 12, 13, 14 & 15 around the openings 17. The flange 18 has a rear face 19 which extends outwardly parallel to the rear panel 10, four sides 20, 21, 22 & 23 parallel to box sides 12, 13, 14 & 15 respectively and a front face 24. Side 21 extends further from rear face 19 than side 20, thus front face 24 slopes with respect to rear face 19. A step 25 is formed in the inner edge part 26 of the flange 18 and two holes 27 & 28 are formed in the flange 18 extending parallel to front and rear faces 19 & 24 between the step 25 and flange sides 22 & 23 respectively.

100 Two leaf springs 29 & 30 extend from the rear end parts 31 & 32 of short sides 12 & 13 at an acute angle to short sides 12 & 13 ending immediately behind the rear face of the flange 19. A plurality of holes 37 are formed in rear panel 10 of the box 9, holes 37 are surrounded by sleeves 38 which extend outwardly from panel 10 away from the shell 4.

In use, the end parts 39 of a plurality of optical wave guides 2 are fed through orifices 37 into sleeves 6 where they are frictionally engaged with their ends abutting the front panel 5 in the regions 8. The front panel 5 is seated in the step 25 of the flange 18 with cylindrical lugs 33 & 34 engaging in circular holes 27 & 28. The display unit is formed so that the box 4 will fit in the rectangular opening provided in the dash board of motor vehicles for fitting additional electrical accessories. To fit the display unit into such an opening the unit is pushed into the opening, rear panel 10 first, leaf springs 29 & 30 being compressed inwardly until the rear face 19 of the flange 18 abuts the dash board, when leaf springs 29 & 30 spring out behind the dash board securing the unit 1 in place. Each end part (not shown) of each optical wave guide 2 remote from the display unit is positioned close to one of the lights of the vehicle so that light (not shown) may enter the optical wave guide 2.

display unit

If the vehicle light is operating, some light from it is conveyed along the optical wave guide to the display unit, where it is emitted through a region 8 in the front panel 5 for an observer to see and be assured that the light is working.

It will be appreciated that in addition to a more reliable indicator the invention can be used to given more information than the indirect methods which merely defect that the connection to an electrical source is intact. The intensity of the light emitted is indicated, as too is its colour, which may be important in some application.

The invention also may be used in conjunction with light sources other than electric light sources, for example, gas lights.

CLAIMS (filed 10/2/82)

1. A light source condition indicator comprising means defining a display location, an optical wave guide extending between the display location and a remote light source, the wave guide being operative to direct light, when emitted, from the source to the display location to indicate the condition of the light source.

2. A light source condition indicator as claimed

25 in claim 1 wherein the remote light source is an external light of a vehicle and the means defining the display location is in view of the operator of the vehicle in his normal position inside the vehicle.

30 3. A light source condition indicator as claimed in claim 2 wherein the means defining the display location comprises the dash board of the vehicle.

4. A light source condition indicator as claimed in claim 3 wherein the optical wave guide is located relative to the dash board by a removable display unit dimensioned so as to fit in the opening provided in the dash board of motor vehicles for fitting additional electrical accessories.

5. A light source condition indicator for a motor vehicle comprising a length of optical fibre joined to a display unit, said display unit being adapted to emit light conveyed to it by the optical fibre, and dimensioned to fit in a standard opening provided in the dash board of motor vehicles for fitting additional electrical accessories and means for locating the display unit to the dash board.

6. A light source condition indicator substantially as hereinbefore described with reference to and as shown in the accompanying drawings.